SPYWOLF

Security Audit Report

Completed on

April 5, 2023

OVERVIEW

This audit has been prepared for **VV Token** to review the main aspects of the project to help investors make make an informative decision during their research process.

You will find a a summarized review of the following key points:

- ✔ Contract's source code
- ✔ Owners' wallets
- ✔ Tokenomics
- ✔ Team transparency and goals
- ✔ Website's age, code, security and UX
- ✔ Whitepaper and roadmap
- ✔ Social media & online presence

The results of this audit are purely based on the team's evaluation and does not guarantee nor reflect the projects outcome and goal

- SPYWOLF Team -

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VV Token

PROJECT DESCRIPTION

According to their website:

$VV Token is the engine powering the VV ecosystem. $VV token is the easiest device for using every feature VV has to offer including:

- Access to virtual entertainment experiences like concerts, museum exhibitions, and comedy shows in Unus World
- Discounts on wearable NFTs for avatars
- First access to the 6-District VV Metaverse
- Purchasing, rent, and building land

Release Date: Presale starts in March, 2023

Category: Metaverse

CONTRACT 1 INFO

Token Name	Symbol
ToklenVesting	N/A

Contract Address
0x07a49602ED1366B5967d955E236d30c648b84140

Network	Language
Binance Smart Chain	Solidity

Deployment Date	Verified?
March 22, 2023	Yes

Total Supply	Status
N/A	Deployed

TAXES

Buy Tax
none

Sell Tax
none

Our Contract Review Process

The contract review process pays special attention to the following:

- Testing the smart contracts against both common and uncommon vulnerabilities
- Assessing the codebase to ensure compliance with current best practices and industry standards.
- Ensuring contract logic meets the specifications and intentions of the client.
- Cross referencing contract structure and implementation against similar smart contracts produced by industry leaders.
- Thorough line-by-line manual review of the entire codebase by industry experts.

Blockchain security tools used:

- OpenZeppelin
- Mythril
- Solidity Compiler
- Hardhat

VULNERABILITY CHECK

Design Logic	Passed
Compiler warnings.	Passed
Private user data leaks	Passed
Timestamp dependence	Passed
Integer overflow and underflow	Passed
Race conditions and reentrancy. Cross-function race conditions	Passed
Possible delays in data delivery	Passed
Oracle calls	Passed
Front running	Passed
DoS with Revert	Passed
DoS with block gas limit	Passed
Methods execution permissions	Passed
Economy model	Passed
Impact of the exchange rate on the logic	Passed
Malicious Event log	Passed
Scoping and declarations	Passed
Uninitialized storage pointers	Passed
Arithmetic accuracy	Passed
Cross-function race conditions	Passed
Safe Zeppelin module	Passed
Fallback function security	Passed

THREAT LEVELS

When performing smart contract audits, our specialists look for known vulnerabilities as well as logical and access control issues within the code. The exploitation of these issues by malicious actors may cause serious financial damage to projects that failed to get an audit in time. We categorize these vulnerabilities by the following levels:

High Risk

Issues on this level are critical to the smart contract's performance/functionality and should be fixed before moving to a live environment.

Medium Risk

Issues on this level are critical to the smart contract's performance/functionality and should be fixed before moving to a live environment.

Low Risk

Issues on this level are minor details and warning that can remain unfixed.

Informational

Information level is to offer suggestions for improvement of efficacy or security for features with a risk free factor.

FOUND THREATS

High Risk

No high risk-level threats found in this contract.

Low Risk

No low risk-level threats found in this contract.

Medium Risk

No medium risk-level threats found in this contract.

Informational

Token vesting schedules are as follows:

Operations and reserve - 35 months 425,000,000 tokens, no tokens released immediately.
Founders - 47 months 1,500,00,000 tokens, no tokens released immediately.
Strategic partners - 47 months 70,000,000 tokens, no tokens released immediately.
Advisory - 11 months 60,000,000 tokens, no tokens released immediately.
Marketing and tech development - 23 months 70,000,000 tokens, no tokens released immediately.
Exchange and listings - 35 months 75,000,000 tokens, no tokens released immediately.
Private - 6 months 50,000,000 tokens, no tokens released immediately.

Only addresses added in the private round can withdraw tokens directly from the contract.
Tokens vested in different schedules than the private one will be sent to the corresponding beneficiary addresses.
Only owner and the corresponding beneficiary addresses can withdraw tokens from the said vesting schedules.

Informational

Owner can add addresses and assign share in the private round sale, until total combined amount of added users reach 50,000,000 tokens.

```
function addPrivateVestingScheduleBeneficiary(
    address _beneficiary,
    uint256 _amount
) external onlyOwner {
    require(
        vestingSchedules[uint256(VestingScheduleType.Private)].amount -
            privateRoundTotalAmount >=
            _amount,
        "Can not create vesting schedule because of not sufficient tokens"
    );
    require(_amount > 0, "The amount must be greater than 0");
    require(
        privateRoundInvestors[_beneficiary].amount == 0,
        "Beneficiary is already exist"
    );
    privateRoundInvestors[_beneficiary] = PrivateRoundInvestor(
        _amount,
        0,
        block.timestamp
    );
    privateRoundTotalAmount += _amount;
}

vestingSchedules[
        uint256(VestingScheduleType.Private)
    ] = VestingSchedule(
        6 * MONTH,
        50000000 * DECIMAL_FACTOR,
        0,
        address(0)
    );
```

Informational

Owner can release any vesting schedule to their corresponding beneficiary address.
Beneficiary address for the current vesting schedule can also initiate the function.

```
function release(uint256 vestingScheduleId) external {
    require(
        vestingSchedules[vestingScheduleId].beneficiary != address(0),
        "Not correct id"
    );
    VestingSchedule storage vestingSchedule = vestingSchedules[
        vestingScheduleId
    ];
    bool isBeneficiary = msg.sender == vestingSchedule.beneficiary;
    bool isOwner = msg.sender == owner();
    require(
        isBeneficiary || isOwner,
        "Only beneficiary and owner can release vested tokens"
    );
    uint256 vestedAmount = _computeReleasableAmount(vestingSchedule);
    require(
        vestingSchedule.released + vestedAmount <= vestingSchedule.amount,
        "Impossible to implement more than expected"
    );
    vestingSchedule.released += vestedAmount;
    address _beneficiary = vestingSchedule.beneficiary;
    vvToken.safeTransfer(_beneficiary, vestedAmount);
}
```

Informational

Owner can withdraw ETH from the contract.

```
function withdrawEth(uint256 amount) external onlyOwner {
    address payable to = payable(msg.sender);
    to.transfer(amount);
}
```

Owner can withdraw any tokens from the contract with exception for the VV Token.

```
function withdrawToken(address tokenAddress) external onlyOwner {
    require(tokenAddress != address(vvToken), "vvToken is not withdrawable");
    ERC20 token = ERC20(tokenAddress);
    uint256 balance = token.balanceOf(address(this));
    token.transfer(_msgSender(), balance);
}
```

Owner can release private investors vesting schedule to the corresponding beneficiary address.
Private investors can also initiate that function if they are the beneficiary address.

```
function releaseForPrivateRoundInvestors(address _beneficiary) public {
    require(
        privateRoundInvestors[_beneficiary].amount > 0,
        "Unauthorized beneficiary"
    );
    require(
        msg.sender == owner() || msg.sender == _beneficiary,
        "Only beneficiary and owner can release vested tokens"
    );
    uint256 vestedAmount = computeReleasableAmountForPrivate(_beneficiary);
    require(
        privateRoundInvestors[_beneficiary].released + vestedAmount <=
            privateRoundInvestors[_beneficiary].amount,
        "Impossible to implement more than expected"
    );
    privateRoundInvestors[_beneficiary].released += vestedAmount;
    vvToken.safeTransfer(_beneficiary, vestedAmount);
}
```

RECOMMENDATIONS FOR

GOOD PRACTICES

1. Consider fundamental tradeoffs
2. Be attentive to blockchain properties
3. Ensure careful rollouts
4. Keep contracts simple
5. Stay up to date and track development

TokenVesting

GOOD PRACTICES FOUND

- ✔ The owner cannot stop or pause the contract after start.

CONTRACT 2 INFO

Token Name	Symbol
Virtual Versions	VV

Contract Address
0x528DD4CF16c45B5767aEa67877Dac5C0Aa74a8cD

Network	Language
Binance Smart Chain	Solidity

Deployment Date	Verified?
March 22, 2023	Yes

Total Supply	Status
1,000,000,000	Deployed

TAXES

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none

Sell Tax
none

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TOKEN TRANSFERS STATS

Transfer Count	4
Uniq Senders	3
Uniq Receivers	4
Total Amount	1103080000 VV
Median Transfer Amount	75000000 VV
Average Transfer Amount	275770000 VV
First transfer date	2023-03-22
Last transfer date	2023-04-03
Days token transferred	2

SMART CONTRACT STATS

Calls Count	7
External calls	1
Internal calls	6
Transactions count	3
Uniq Callers	3
Days contract called	1
Last transaction time	2023-04-03 17:48:10 UTC
Created	2023-04-03 15:32:43 UTC
Create TX	0xca02fb16b2085e3b512e9678cd96458788eeaf99e32980f78aa162b6449a0be0
Creator	0x07a49602ed1366b5967d955e236d30c648b84140

FOUND THREATS

⚠ High Risk

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GOOD PRACTICES

1. Consider fundamental tradeoffs
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VV Token

GOOD PRACTICES FOUND

- ✔ The owner cannot mint new tokens after deployment
- ✔ The owner cannot stop or pause the contract
- ✔ The owner cannot set a transaction limit

SPYWOLF

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No applications were reviewed for security. No product code has been reviewed.